

## REMARKS

Claims 42-83 are pending. Of these claims 51, 56, 65-68, and 76 are withdrawn. Claims 42-50, 52-55, 57-64, 69-75, and 77-83 are examined. Claims 47-50, 52-55, 57-63, 69-75, and 77-83 are rejected under 35 U.S.C. § 112, first paragraph. Claims 47-50, 52-55, 57-63, 69-75, and 77-83 are rejected under 35 U.S.C. § 112, second paragraph. Claims 42-43 and 45-46 are rejected under 35 U.S.C. § 102(b). Claim 44 is objected to as being dependent on a rejected base claim. Each of these rejections and the objection are addressed below.

### Specification amendments

To comply with the requirements of 37 C.F.R. § 1.821(d), Applicants have amended the specification to include sequence identifiers where appropriate. These amendments add no new matter.

### Claim amendments

Claims 44, 47-50, 52-55, 57-64, 69-75, and 77-83 are canceled, and new claims 84-110 have been added. Support for new claims 84-88 is found in the specification, for example, in claims 1-4. Support for new claims 89-110 is found in the specification, for example, as detailed in the following table.

New Claim No.	Canceled Claim No.
89	47
90	55

91	57
92	58
93	59
94	60
95	61
96	62
97	63
98	64
99	69
100	70
101	71
102	72
103	73
104	74
105	75
106	77
107	78
108	80
109	81
110	83

New claims 84 and 85 refer to oligonucleotides having a concatenation encoding a polypeptide with formula  $(P-K)_n$ .

New claims 86-88 refer to oligonucleotides having a concatenation encoding a polypeptide with formula  $(P-K)_n$  and having further specific codons either interrupting said concatenation (claim 86) or at the end of said concatenation (claims 87 and 88).

The language of canceled claim 44 has been incorporated into claim 42.

New claim 89, which incorporates the language of canceled claim 47, depends upon amended claim 42 or new claim 84. New claims 90, 104 and 105, which incorporate the language of canceled claims 55, 74, and 75, respectively, depend upon

new claim 89.

New claim 89, which incorporates the language of canceled claim 47, lacks the expression found in canceled claim 47 “having in its primary structure, tandem repeats which are rich in proline-type amino acids residues.”

New claims 89, 107, and 109, which incorporate the language of canceled claims 47, 78 and 81, respectively, refer to the maize plant.

New claims 90 and 96, which incorporate the language of claims 55 and 62, respectively, refer to SEQ ID NO. (presented in the sequence listing) instead of Figures.

As noted above, no new matter is added by these amendments.

Rejection under 35 U.S.C. § 112, first paragraph

Claims 47-50, 52-55, 57-63, 69-75, and 77-83 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Claim 47, which was rejected for reciting the phrase, “having in its primary structure, tandem repeats which are rich in proline-type amino acids residues,” has been canceled, and new claim 89, which corresponds to prior claim 47, does not include this phrase.

This rejection is now rendered moot.

Claims 47-50, 52-54, 57-61, 63, 69-75, and 77-83 have been rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that

the inventor at the time the application was filed had possession of the claimed invention.

This rejection is being traversed in part and is being obviated by amendment.

The subject matter of claim 47, which has been canceled, is now recited in new claim 89, which specifies that the protein reserve, in which a concatenation encoding a peptide of formula  $(P-K)_n$  is inserted, is a maize gamma-zein ( $\gamma$ -zein) of 28 kDa (as mentioned in the Office Action on page 4, line 2: "encoding a modified 28kDa  $\gamma$ -zein protein reserve from maize"). Such a protein and the resulting constructs are described in detail in the specification; for example, the sequence of the wild-type  $\gamma$ -zein protein is given in SEQ ID NO:6 (nucleotide) and SEQ ID NO:7 (protein) as well as in Figure 9, wherein the proline-rich region can be clearly identified. The different constructs appear, for example, in Figure 3 and on page 24, presenting a schematic representation of the different constructs of lysine-rich  $\gamma$ -zeins, e.g., P20 $\gamma$ Z (SEQ ID NO:11, Figure 11), H30 $\gamma$ Z and H45 $\gamma$ Z (SEQ ID NO:9, Figure 10). Consequently, since the present claims are now limited to proteins and constructs taught in the specification, withdrawal of this rejection is respectfully requested.

Claims 47-50, 52-54, 57-61, 63, 69-75, and 77-83 have been rejected under 35 U.S.C. § 112, first paragraph, because the specification does not provide enablement for any plant transformed.

Claim 47 has been canceled, and its language has been incorporated into new claim 89. New claim 89 specifies that the modified protein is a  $\gamma$ -zein from maize 28 kDa

in size, as mentioned above. Figure 8 shows that a lysine enriched  $\gamma$ -zein, for example, p20 $\gamma$ Z, can localize in maize endosperm.

Claims 77, 78, and 81 have been canceled, and their language is incorporated into new claims 106, 107, and 109, respectively. These new claims refer to seeds, plants or a method for producing plants or seeds and have been limited to maize plants. As the new claims are amended to refer to maize plants which are disclosed in the present application, withdrawal of this rejection is respectfully requested.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 47-50, 52-55, 57-63, 69-75, and 77-83 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office maintains that the expression “proline-type” of claim 47 is unclear. This claim has been canceled; thus, the objection is now rendered moot.

Rejection under 35 U.S.C. § 102(b)

Claims 42-43 and 45-46 have been rejected under 35 U.S.C. § 102(b), as being anticipated by Gaisser and Braun (*Mol. Microbiol.* 5(11):2777-2787, 1991; hereafter “Gaisser”), submitted as GenBank Accession Number S80675. This rejection is respectfully traversed.

Gaisser describes a 247 amino-acid protein, tonB, from *Serratia marcescens* comprising 5 consecutive (P-K) units. Claim 42 refers to an oligonucleotide comprising a concatenation encoding a polypeptide with formula  $(P-K)_n$  ( $n$  is 3 or more), and has been amended so that said concatenation is interrupted by one or more amino acid other than P or K, incorporating the limitations of canceled claim 44. Gaisser does not disclose a concatenation encoding a polypeptide with formula  $(P-K)_n$  (where  $n$  is 3 or more), interrupted by one or more amino acids other than P or K. Consequently, claim 89 and dependent claims are novel over Gaisser.

New claims 84 to 88 refer to an oligonucleotide having a concatenation encoding a polypeptide with formula  $(P-K)_n$  (where  $n$  is 3 or more). Gaisser does not disclose an oligonucleotide having a concatenation encoding (P-K) units only. Rather, Gaisser discloses an oligonucleotide comprising a concatenation encoding (P-K) units, but also comprising nucleotides encoding other amino acids upstream and downstream of said (P-K) units. Consequently, claims 84 to 88 are novel over Gaisser. In view of the above, withdrawal of this rejection is respectfully requested.

#### Claim objections

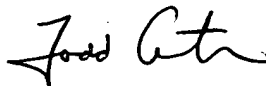
Claim 44 is objected to as being dependent on a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 44 has been canceled, and its language has been

incorporated into amended claim 42. Thus, withdrawal of this objection is respectfully requested.

### CONCLUSION

Applicants submit that this case is in condition for allowance and such action is respectfully requested. If there are any charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,



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